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L7: Entry 1 of 1

File: USPT

Nov 14, 2000

DOCUMENT-IDENTIFIER: US 6148090 A

TITLE: Apparatus and method for providing map information in image form

CLAIMS:

5. The apparatus for providing map information according to claim 3, wherein said information extraction means extracts the necessary passing point information which is on the optimum route according to calculation of the route of shortest required time between at least two points on the map data.

15. The method for providing map information according to claim 13, wherein said extracting step extracts the necessary passing point information which is on the optimum route according to calculation of the route of shortest time required between at least two points on the map data.

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L5: Entry 1 of 1

File: USPT

Nov 14, 2000

US-PAT-NO: 6148090

DOCUMENT-IDENTIFIER: US 6148090 A

TITLE: Apparatus and method for providing map information in image form

DATE-ISSUED: November 14, 2000

INVENTOR-INFORMATION:

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NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
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APPL-NO: 08/966944 [PALM]

DATE FILED: November 10, 1997

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	08-306790	November 18, 1996

INT-CL: [07] G06 K 9/00, G08 G 1/123

US-CL-ISSUED: 382/113, 382/305, 701/202

US-CL-CURRENT: 382/113, 382/305, 701/202 ✓

FIELD-OF-SEARCH: 382/201, 382/103, 382/113, 382/284, 382/305, 382/306, 348/118, 340/995, 701/24, 701/25, 701/28, 701/201, 701/202, 701/208, 701/209, 701/211, 701/212

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> <u>5113185</u>	May 1992	Ichikawa	340/995
<input type="checkbox"/> <u>5168452</u>	December 1992	Yamada et al.	364/444
<input type="checkbox"/> <u>5378969</u>	January 1995	Haikawa	318/568.12

<input type="checkbox"/>	<u>5471205</u>	November 1995	Izawa	340/995
<input type="checkbox"/>	<u>5559707</u>	September 1996	DeLorme et al.	364/443
<input type="checkbox"/>	<u>5638116</u>	June 1997	Shimoura et al.	382/103
<input type="checkbox"/>	<u>5802492</u>	September 1998	DeLorme et al.	701/200
<input type="checkbox"/>	<u>5832406</u>	November 1998	Iwami et al.	701/202
<input type="checkbox"/>	<u>5874905</u>	February 1999	Nanba et al.	430/995
<input type="checkbox"/>	<u>5974357</u>	October 1999	Poonaengsathit et al.	701/210
<input type="checkbox"/>	<u>5982301</u>	November 1999	Ohta et al.	340/995

OTHER PUBLICATIONS

U.S. Patent Application No. 08/963,697, filed Nov. 4, 1997, Narioka.
O'Leary, "Mapquest and Maps On Us: Top Web Map Services," Online, vol. 21, No. 5, Sep./Oct. 1997, pp. 56-58.

"Geosystems' MapQuest Unveils the Most Customizable Driving Directions Available on the Web," Geosystems Global Corporation press release, May 27, 1997, located at URL: <http://www.geosys.com/cgi-bin/genobject/pr.sub.- MQcustdirections/tig75b5>.

ART-UNIT: 271

PRIMARY-EXAMINER: Johns; Andrew W.

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ABSTRACT:

An apparatus for providing map information includes a route calculating module for extracting crossing information on a map, a navigation guidance generating module for generating images near the crossing extracted and a rally map generating module for disposing the generated images near the crossing in fixed sequence, and is constructed to output the images of the crossing disposed in the fixed sequence. Therefore, even if a personal computers are not provided with the same software and a navigation apparatus made by the same manufacturer and a portable computer are not carried, it is able to provide the apparatus for providing map information that is possible to provide or use easily to understand searched route information.

21 Claims, 5 Drawing figures

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